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XIV. *Some Observations on the Cancer Major,*  
*by Mr. Peter Collinson, F. R. S.*

*Newport in the Isle of Wight, July 1. 1745.*

*Read Feb. 20. 1745-6.* IN riding about this pleasant Island, to see what was curious, or may deserve a Traveller's Notice, I visited a little Parish call'd *Crab-Nighton*, which probably has its additional Name from the Plenty of Crabs found on this Coast. What Intelligence I have gain'd from the Fishermen, and my own Experience on the Nature and Faculties of this Animal, I shall carefully relate.

The *Cancer Major*, or largest Species of Crab, have their chief Abode from twenty to forty Fathom Water; they herd together in distinct Tribes, and have their separate Haunts for Feeding and Breeding, and will not associate with their Neighbours. This has been carefully tried, by taking a Crab, and marking its Shell, and carrying it two or three Miles Distance, and leaving it amongst the same Species. — This Crab has found its Way back to its old Home, and has been caught by the same Fishermen that carried it.

The smallest Crab that comes to Hand is about the Size of a Chestnut; the full-grown seven Pounds Weight, but there has been one caught that weigh'd twelve Pounds. The Bait is Flesh, or Pieces of Skait, or small Shark, of which he eats but little. The Fishermen all agree, the Crab will live confined in the Pot or Basket some Months, without any Food but what is collected from the Sea-water, and not decrease in Weight. The Difference of Sex is very conspicuous,

conspicuous, and they are very prolific; but I could procure no certain Account of their Way of Coupling, nor in what Time they attained to full Growth.

Once a Year, like the Lobster, they lose or cast their Shells. Against this extraordinary Change, they choose a close and well-secured Retreat in the Cavities of Rocks, and under great Stones: There they creep in, and wait, until, by degrees, the Parts are disengaged; which is effected by withdrawing their Legs from their old Shells, leaving them, and the upper Part of their Body-Shell behind.

In this naked State they make a very odd Appearance, being an ill-shapen Lump of Jelly-like Substance, which gradually hardens into a Shell a Size larger than the old one: For this is the Way of Growth appointed for this Animal, and others of the crustaceous Species. —— These Hints I collected from People of good Character, whose Employ was always amongst them.

But now I shall relate something to this *Society* more wonderful, of my own Knowledge, which I hope may be worthy their Attention, being one of the most surprising *Phænomena* in Nature; which is, That this large Species of Crab has a Power in itself voluntarily to crack and break its own Legs or Claws, and drop them off.

The Reproduction of the Legs of Craw-fish has been mention'd in the *History of the Royal Academy of Sciences*, with some just Remarks about the Growth of these Creatures Shells; but I don't know any Writer has taken notice of this strange Event of the Crab.

Mr. Benjamin Cook, at *Newport* in the *Isle of Wight*, a worthy Member of this Society, told me of this marvellous Property in the Great Crab; but I could not comprehend it, until I saw the Experiment tried on two Crabs; then I was soon convinced of the Truth of the Fact; for, in a few Minutes, the Legs all dropp'd off one after another.

This the Crab will do in any Position; but the easiest Method is to lay it on its Back, and then take a Pair of strong iron Pincers, and break the Shell, and bruise the Flesh of the third or fourth Joint of its small Leg: After it has received the Hurt, it bleeds, and gives Sign of Pain, by moving its Leg from Side to Side; but afterwards holds it quite still, in a direct and natural Position, without touching any Part of its Body, or its other Legs, with it. Then, on a sudden, with a gentle Crack, the wounded Part of the Leg drops off at the second Joint, or *Internodium*, from its Body; just as one sees the Neck of a Retort separate, where it has been heated by a red-hot iron Ring, on the Application of cold Water. The great Legs are cast off in the same manner, but are not so easily laid hold on as the small ones.

Those that have not seen this wonderful Operation may reasonably conclude, that the Leg is cast out of its Joint or Socket; but it is quite otherwise; for it cracks and breaks off in the smoothest Part of the Joint, and the Rim of the Body-Shell is no-ways assistan to it.

To try what Effect Increase of Pain would have in this Work, a small Hole was pierc'd in the great Legs, and then a pointed Iron was put in to lacerate the inclosed Muscle: The Consequence was answerable

able to Expectation ; Symptoms of greater Pain ensued, and the Leg was cast off with greater Violence.

It is really amazing and inconceivable, by what Power or Contrivance in itself, so wonderful an Operation can be performed by the Crab, as voluntarily to crack and break so hard a Shell, and its Muscles, and then cast off its Legs. The small Diameter of this Joint, the Disposition of the Fibres, and a very small circular *Fossa*, may contribute greatly to accelerate the Work ; but yet the main Spring of Action (for the present) seems beyond the Reach of human Comprehension. The whole Performance is so curious, and so singular a Fact in the History of Nature, that it may well deserve a nicer Consideration, by those that have greater Abilities, and more Leisure, for such Inquiries.

When the Leg is dropp'd off, a *Mucus* or Jelly is discharged on the remaining Part of the Joint next the Body, which, as a natural Styptic, instantly stops the Bleeding, and gradually hardens and grows callous, and forms into a Leg in Miniature, which, by degrees, shoots forth, and attains to its natural Size, to supply the Place of that which was lost.

An Experiment was next tried, to see of what great Service the *Mucus* or Jelly was to the Crab. When its Legs were all cast off, the Ends of two or three of the Stumps were pierced with a pointed Iron, so as to break off the Jelly that stopped them ; upon which Signs of more intense Pain were exhibited, a very large Flux of Blood ensued, and the Creature soon died in great Agonies, as was manifest by a *Tremor* of those Parts about the Mouth, and a Frothing like that which attends epileptic Fits.

It is reasonable to conclude, that this wonderful Faculty, is given to the Crab for wise Ends and Purposes which will evidently appear when the Nature of this Animal is better known.

The Crabs are naturally very quarrelsome, and with their great Legs or Claws fight and kill one another : With them they catch hold of their Adversary's Legs, and whatever they seize, they strongly retain for a long while : There is no escaping their cruel Foe, but by voluntarily leaving a Part of the Leg behind, in Token of Victory ; but the principal End for which this is done, is the saving the Life of the Conquer'd ; for when they are bitten and bruised, and cannot break off that Limb, they soon bleed to Death.

The Fishermen shew'd an Experiment, to give us some Idea of the tenacious Disposition of this Creature, by obliging a Crab with its great Claw to lay hold of a small one : The silly Creature did not distinguish that itself was the Aggressor ; but exerted its Strength, and soon crack'd the Shell of its own small Leg, and it bled freely ; but, feeling itself wounded, to save its Life required a Power peculiar to itself to break off that Limb in the usual Place ; which it presently effected, and held fast for a long time the broken Part in its great Claw : Which evidently shews, that this Creature retains whatever it lays holds on, and, when overcome by its Enemy, ransoms its Life at the Expence of a Limb.